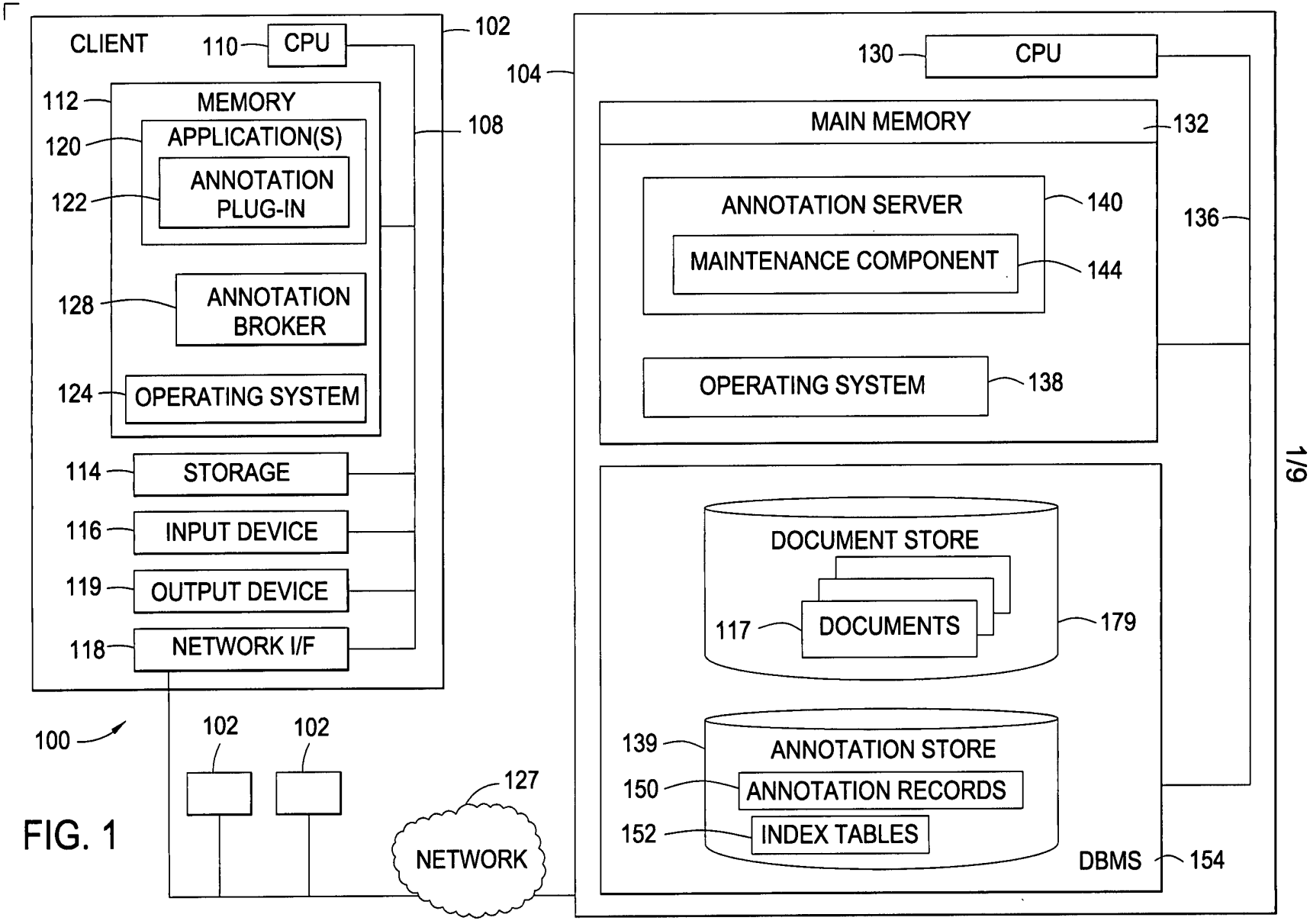
CLIENT
110
CPU
102
112
MEMORY
120
APPLICATION(S)
122
ANNOTATION PLUG-IN
108
128
ANNOTATION BROKER
124
OPERATING SYSTEM
114
STORAGE
116
INPUT DEVICE
119
OUTPUT DEVICE
118
NETWORK I/F
100
102
102
127
NETWORK
104
130
CPU
MAIN MEMORY
132
ANNOTATION SERVER
140
MAINTENANCE COMPONENT
144
136
OPERATING SYSTEM
138
DOCUMENT STORE
117
DOCUMENTS
179
139
ANNOTATION STORE
150
ANNOTATION RECORDS
152
INDEX TABLES
DBMS
154

FIG. 1

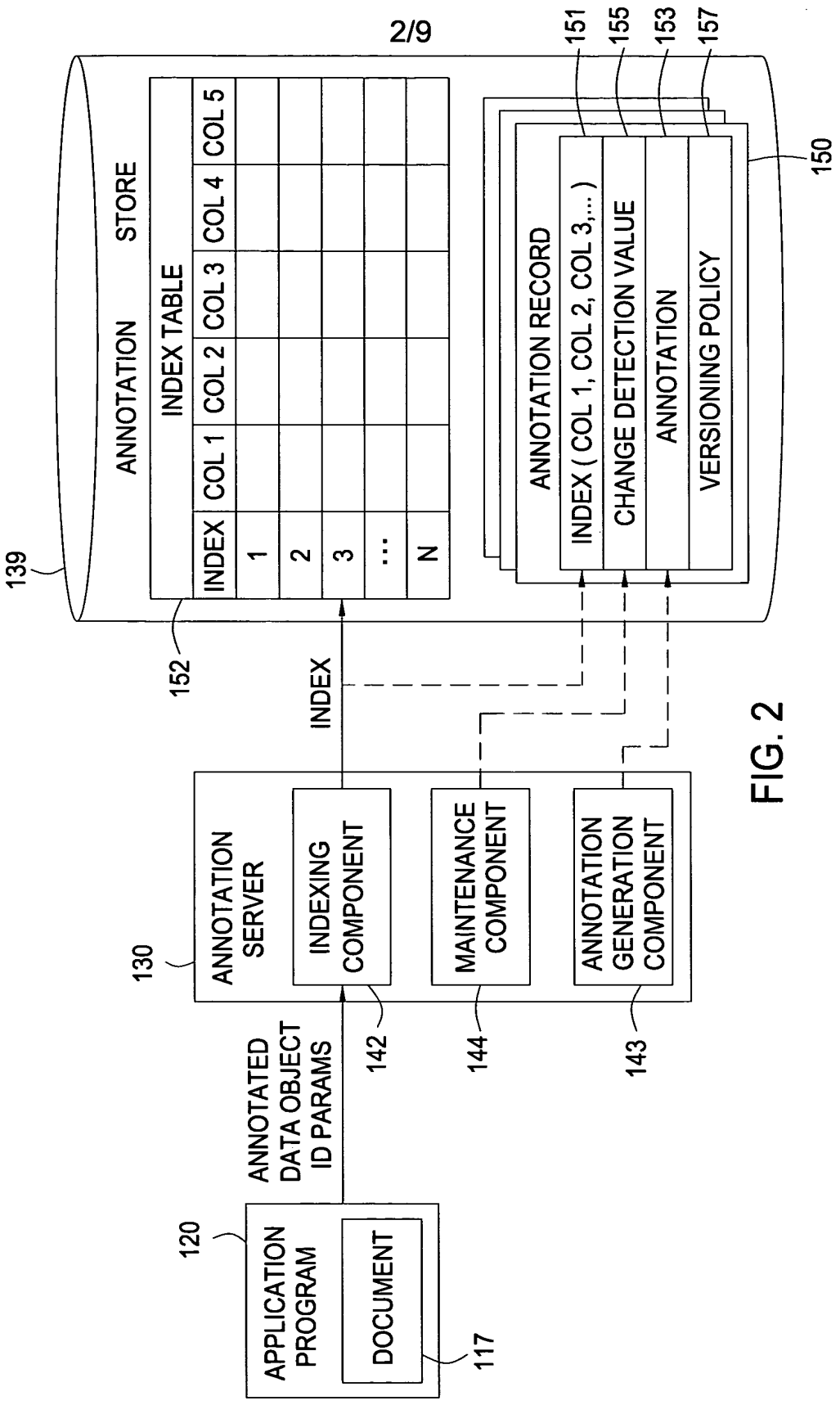
ANNOTATION STORE
INDEX TABLE
INDEX
COL 1
COL 2
COL 3
COL 4
COL 5
1
2
3
...
N
ANNOTATION RECORD
INDEX (COL 1, COL 2, COL 3,...)
CHANGE DETECTION VALUE
ANNOTATION
VERSIONING POLICY
139
150
151
155
153
157
152
INDEX
ANNOTATION SERVER
INDEXING COMPONENT
MAINTENANCE COMPONENT
ANNOTATION GENERATION COMPONENT
130
142
144
143
ANNOTATED DATA OBJECT ID PARAMS
APPLICATION PROGRAM
DOCUMENT
120
117

FIG. 2

POLICIES FOR MAINTAINING ANNOTATIONS FOR MULTIPLE VERSIONS OF A DOCUMENT	
POLICY	DESCRIPTION
NO CHANGE	IF A DOCUMENT IS CHANGED, THE ORIGINAL ANNOTATION DOES NOT APPLY TO THE NEW DOCUMENT
APPLY ANNOTATIONS TO MULTIPLE VERSIONS	AN ANNOTATION ON AN ORIGINAL DOCUMENT ALSO APPLIES TO A SUBSEQUENT VERSION(S) OF THE DOCUMENT
CARRY ANNOTATIONS FORWARD TO NEW VERSIONS	A COPY OF EACH ANNOTATION IS CARRIED FORWARD TO THE MOST ACCURATE POSITION IN SUBSEQUENT VERSIONS OF A DOCUMENT
VALIDATION REQUIRED	AN AUTHORIZED USER MUST VALIDATE AN ANNOTATION BEFORE IT IS CARRIED FORWARD TO SUBSEQUENT VERSIONS OF A DOCUMENT

FIG. 3

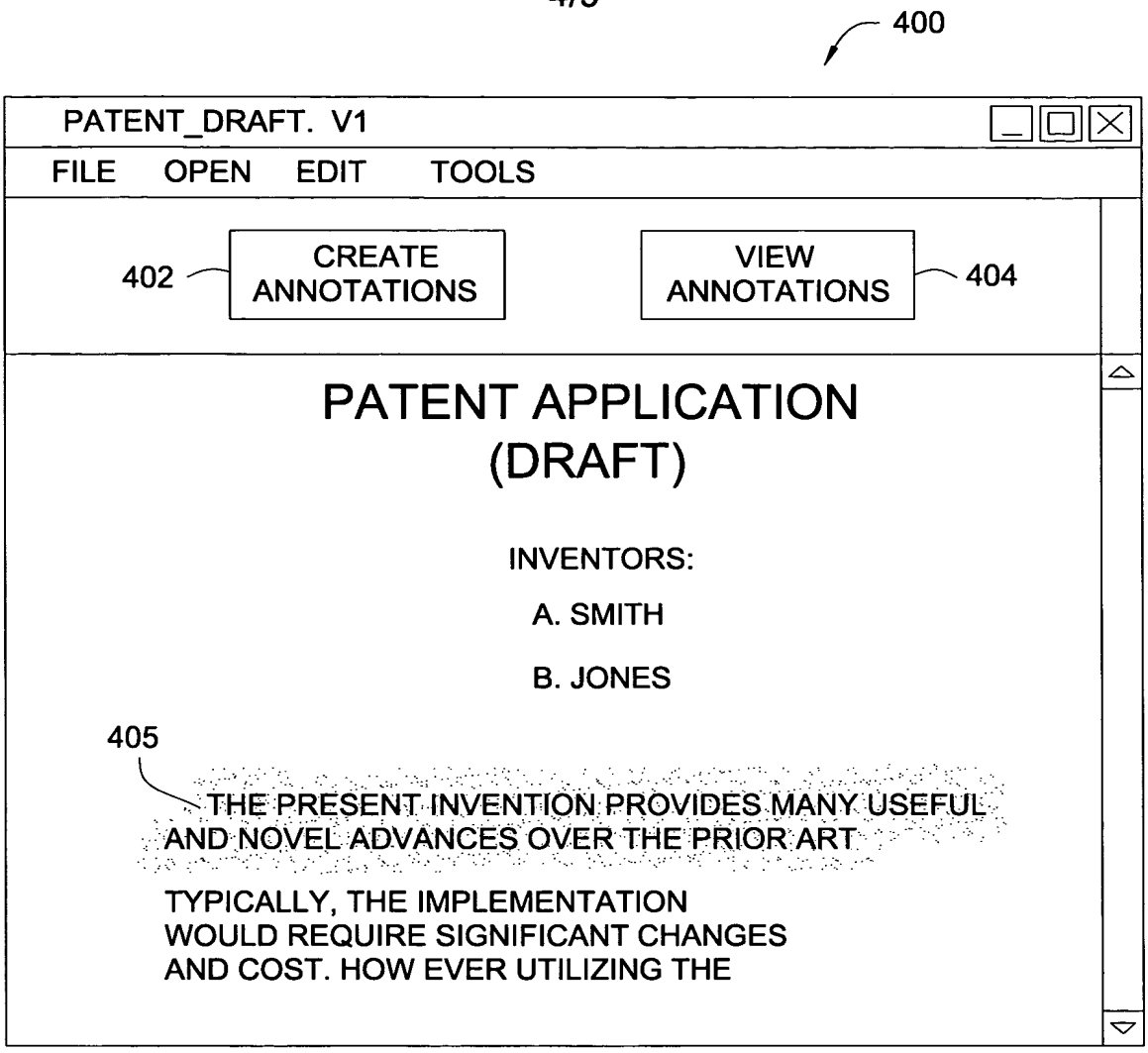
400
PATENT_DRAFT. V1
FILE
OPEN
EDIT
TOOLS
402
CREATE ANNOTATIONS
VIEW ANNOTATIONS
404
PATENT APPLICATION (DRAFT)
INVENTORS:
A. SMITH
B. JONES
405
THE PRESENT INVENTION PROVIDES MANY USEFUL AND NOVEL ADVANCES OVER THE PRIOR ART
TYPICALLY, THE IMPLEMENTATION WOULD REQUIRE SIGNIFICANT CHANGES AND COST. HOW EVER UTILIZING THE

FIG. 4A

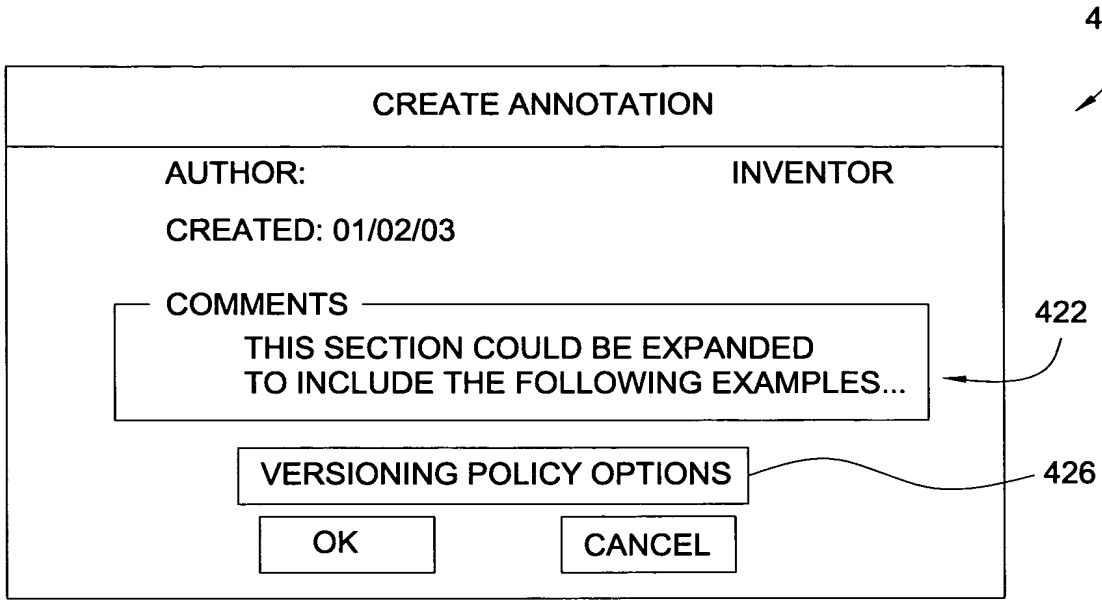
420
CREATE ANNOTATION
AUTHOR:
INVENTOR
CREATED: 01/02/03
COMMENTS
THIS SECTION COULD BE EXPANDED
TO INCLUDE THE FOLLOWING EXAMPLES...
422
VERSIONING POLICY OPTIONS
426
OK
CANCEL

FIG. 4B

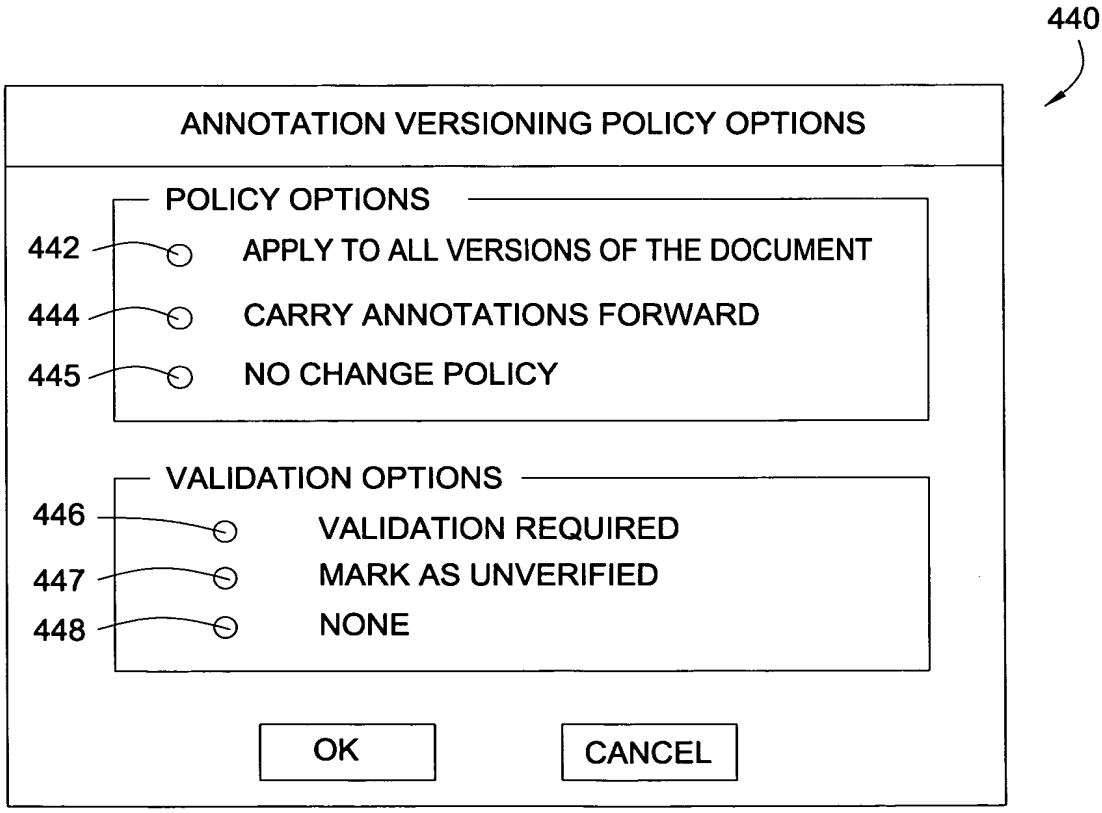
440
ANNOTATION VERSIONING POLICY OPTIONS
POLICY OPTIONS
442
APPLY TO ALL VERSIONS OF THE DOCUMENT
444
CARRY ANNOTATIONS FORWARD
445
NO CHANGE POLICY
VALIDATION OPTIONS
446
VALIDATION REQUIRED
447
MARK AS UNVERIFIED
448
NONE
OK
CANCEL

FIG. 4C

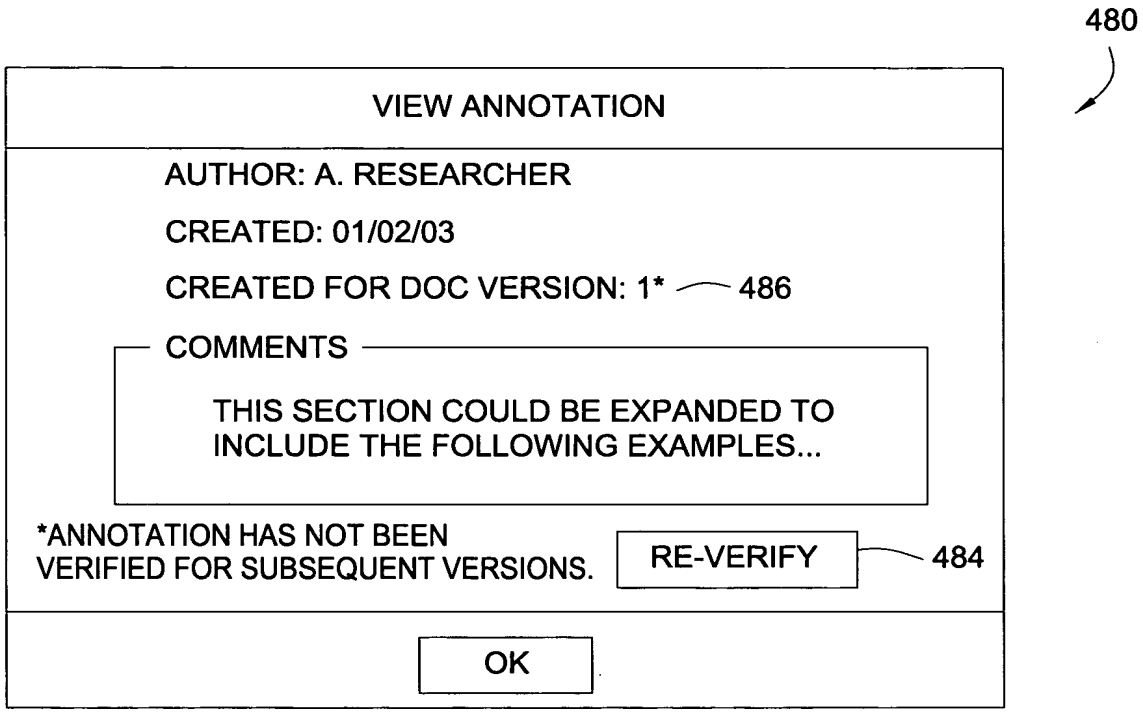
480
VIEW ANNOTATION
AUTHOR: A. RESEARCHER
CREATED: 01/02/03
CREATED FOR DOC VERSION: 1*
486
COMMENTS
THIS SECTION COULD BE EXPANDED TO INCLUDE THE FOLLOWING EXAMPLES...
*ANNOTATION HAS NOT BEEN VERIFIED FOR SUBSEQUENT VERSIONS.
RE-VERIFY
484
OK

FIG. 4D

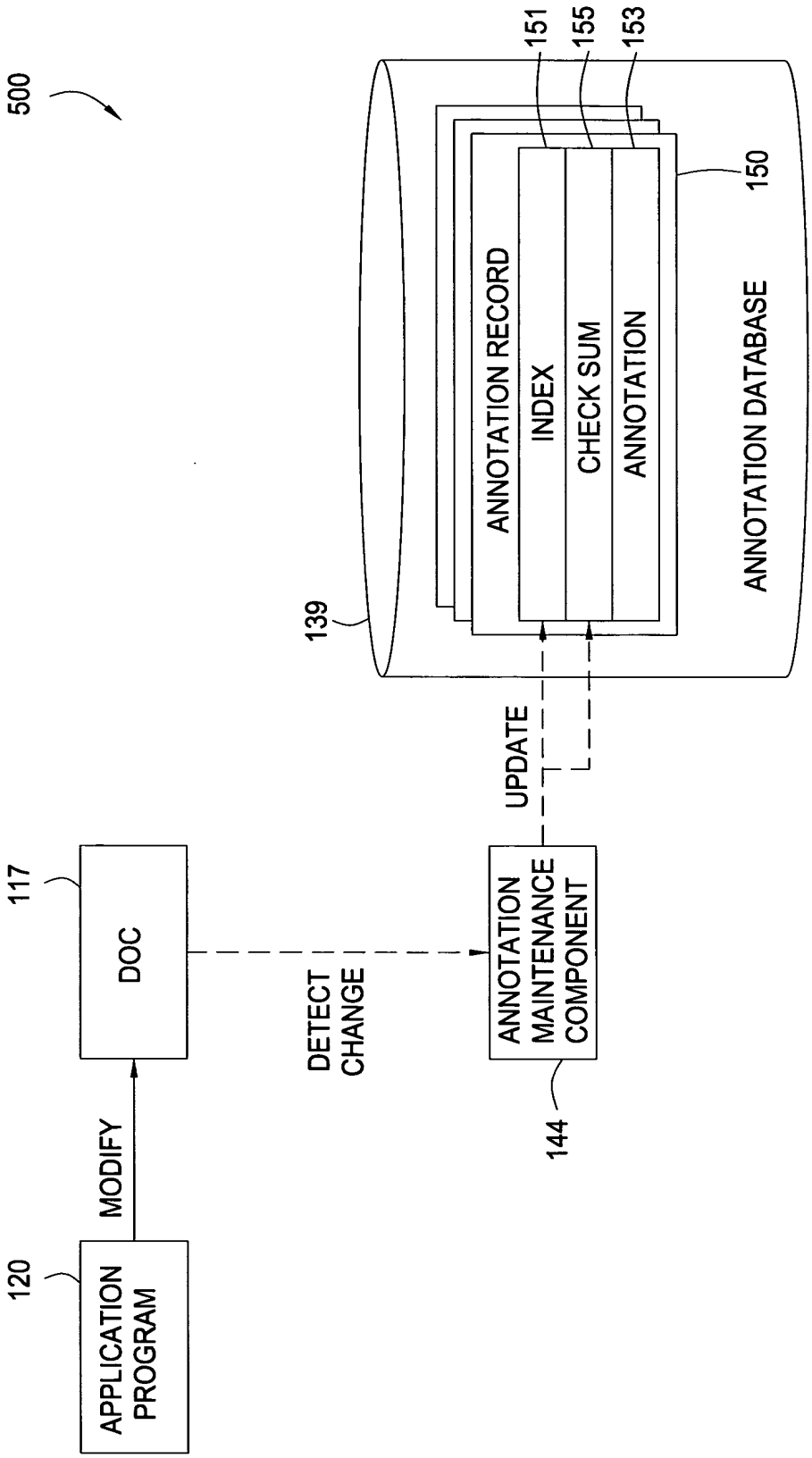
500
151
155
153
150
ANNOTATION RECORD
INDEX
CHECK SUM
ANNOTATION
ANNOTATION DATABASE
139
UPDATE
117
DOC
DETECT CHANGE
ANNOTATION MAINTENANCE COMPONENT
144
120
APPLICATION PROGRAM
MODIFY

FIG. 5

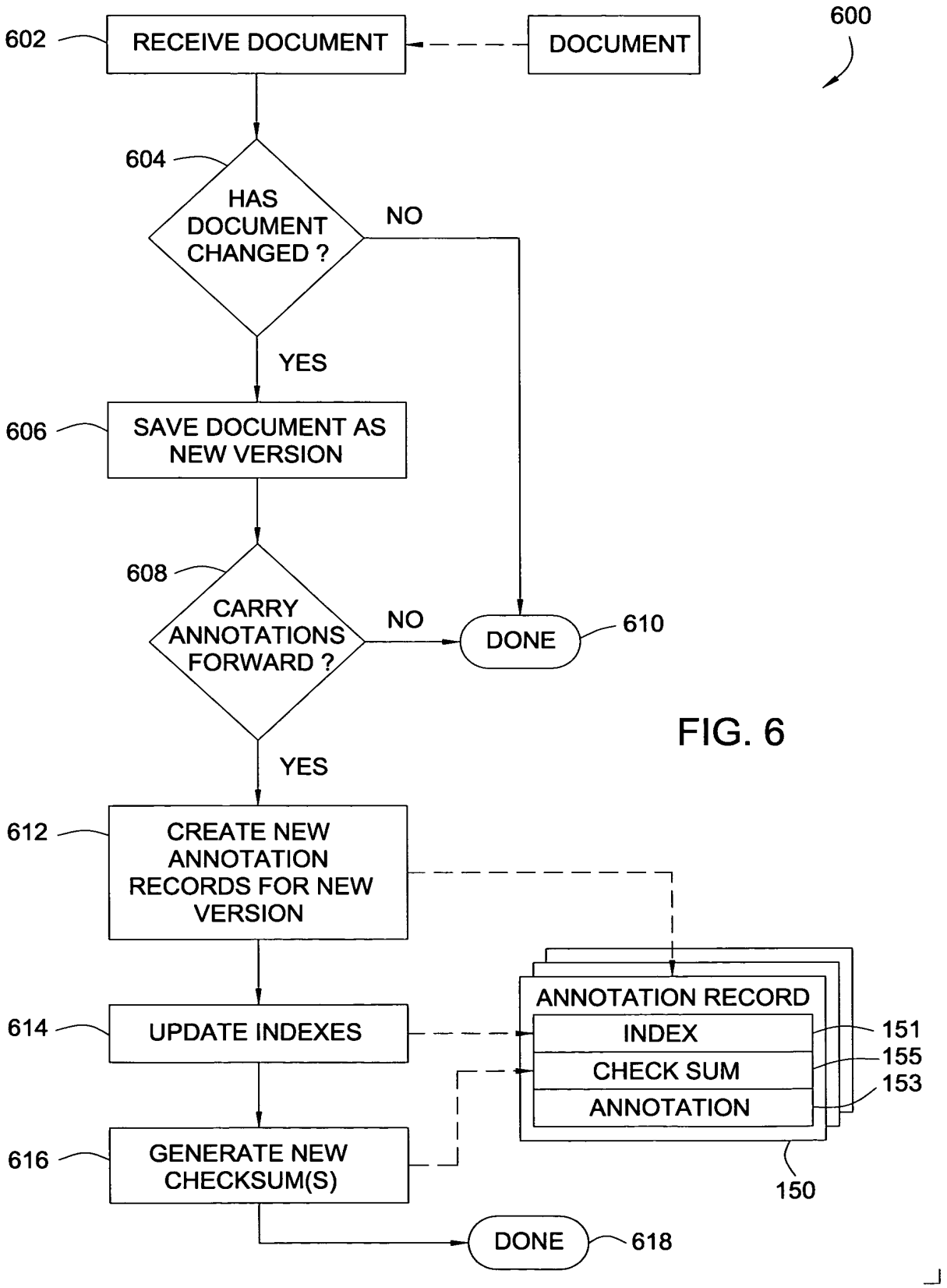
600
602
RECEIVE DOCUMENT
DOCUMENT
604
HAS DOCUMENT CHANGED ?
NO
YES
606
SAVE DOCUMENT AS NEW VERSION
608
CARRY ANNOTATIONS FORWARD ?
NO
DONE
610
YES
612
CREATE NEW ANNOTATION RECORDS FOR NEW VERSION
614
UPDATE INDEXES
616
GENERATE NEW CHECKSUM(S)
DONE
618
ANNOTATION RECORD
INDEX
CHECK SUM
ANNOTATION
151
155
153
150

FIG. 6

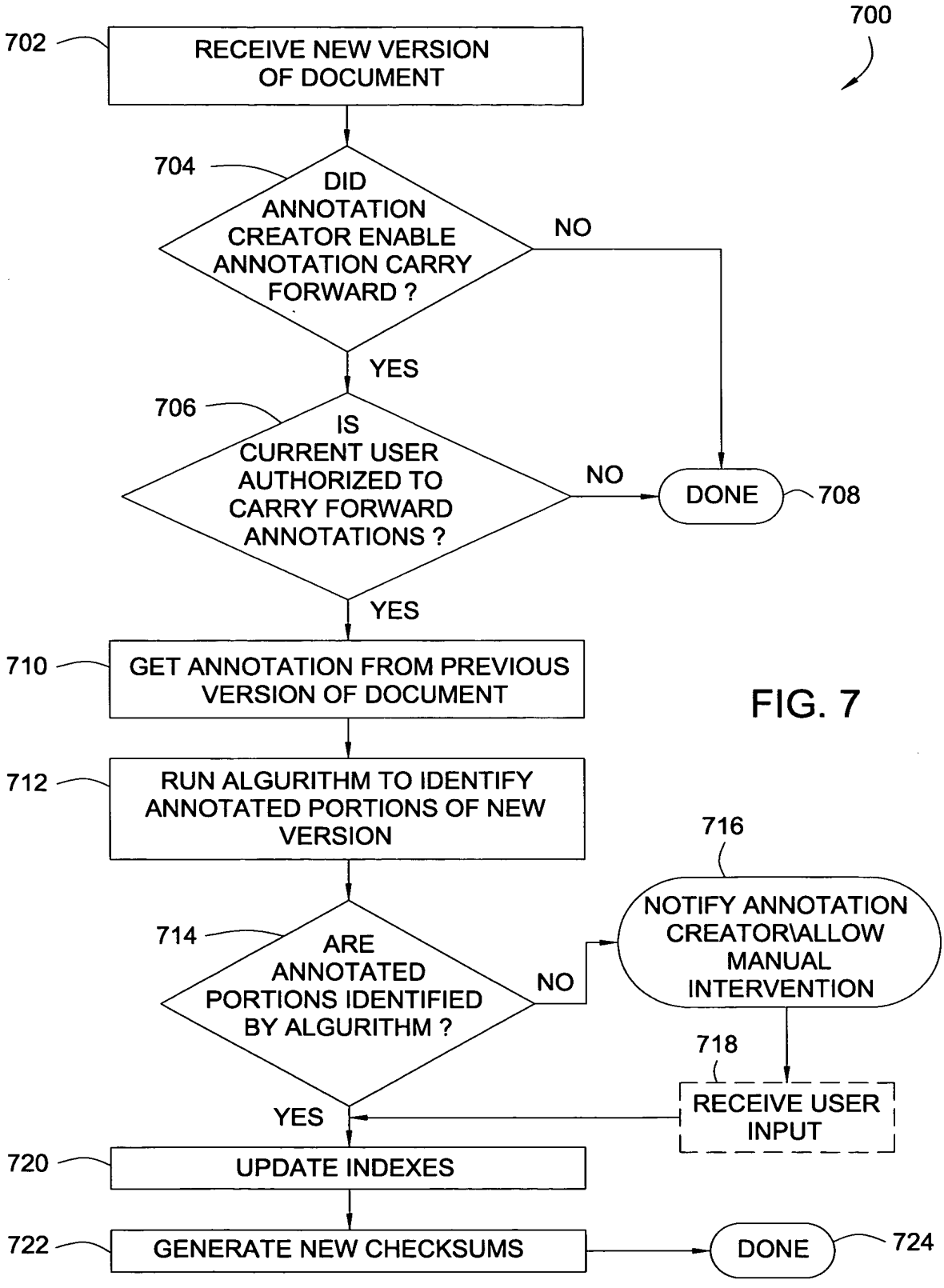
700
702
RECEIVE NEW VERSION OF DOCUMENT
704
DID ANNOTATION CREATOR ENABLE ANNOTATION CARRY FORWARD ?
NO
YES
706
IS CURRENT USER AUTHORIZED TO CARRY FORWARD ANNOTATIONS ?
NO
DONE
708
YES
710
GET ANNOTATION FROM PREVIOUS VERSION OF DOCUMENT
712
RUN ALGURITHM TO IDENTIFY ANNOTATED PORTIONS OF NEW VERSION
716
NOTIFY ANNOTATION CREATOR\ALLOW MANUAL INTERVENTION
714
ARE ANNOTATED PORTIONS IDENTIFIED BY ALGURITHM ?
NO
718
RECEIVE USER INPUT
YES
720
UPDATE INDEXES
722
GENERATE NEW CHECKSUMS
DONE
724

FIG. 7